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United States Patent [19][11] **Patent Number:** **5,605,251****Retti**[45] **Date of Patent:** **Feb. 25, 1997**[54] **PULSELESS PUMP APPARATUS**[75] Inventor: **Kahrl L. Retti**, Timonium, Md.[73] Assignee: **Quick Tools, LLC**, Baltimore, Md.[21] Appl. No.: **351,580**[22] Filed: **Dec. 7, 1994**[51] Int. Cl.⁶ **G01F 11/00**[52] U.S. Cl. **222/1; 222/52; 222/55;**
222/63; 222/325[58] **Field of Search** **222/1, 23, 52,**
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A pumping apparatus is provided for dispensing fluid material which comprises a fluid material supply container and a pump for conducting the fluid material from the container to a dispensing head. A controller receives data from a sensor in the container which identifies fluid material type. A pressure sensor in the dispensing head is used by the controller to continuously monitor fluid pressure and to control the flow rate by adjusting the application of current to electromagnetic coils which rotate an impeller in the pump. A timing device is used by the controller to measure the fluid flow rate. The controller adjusts the flow rate to a preprogrammed rate corresponding to the fluid material type by changing the position of pressure plates with respect to the impeller. A dispensing head is provided for applying joint compound to a wallboard joint. A water based composition for a joint compound is provided which comprises a pure gypsum plaster, an aliphatic resin glue and water, but no added alcohol or abrasive fillers.

36 Claims, 17 Drawing Sheets